PATENT COOPERATION TREATY

PCT

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Applicant's or agent's file reference see form PCT/ISA/220	Date of mailing *(day/month/year)* see form PCT/ISA/210 (second sheet) **FOR FURTHER ACTION** See paragraph 2 below

International application No. PCT/IB2005/050086	International filing date *(day/month/year)* 07.01.2005	Priority date *(day/month/year)* 22.01.2004

International Patent Classification (IPC) or both national classification and IPC
G09G3/34

Applicant
KONINKLIJKE PHILIPS ELECTRONICS N.V.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:

European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized Officer

Wolff, L

Telephone No. +49 89 2399-7049

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/IB2005/050086

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material:

   ☐ a sequence listing

   ☐ table(s) related to the sequence listing

   b. format of material:

   ☐ in written format

   ☐ in computer readable form

   c. time of filing/furnishing:

   ☐ contained in the international application as filed.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/IB2005/050086

Box No. II Priority

1. ☐ The following document has not been furnished:

   ☐ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

   ☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

   Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. ☒ The International Searching Authority has not been able to consider the validity of the priority claim because a copy of the earlier application whose priority has been claimed was not available to the International Searching Authority at the time that the search was conducted (Rule 17.1). This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

4. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	4-8
	No:	Claims	1-3,9-16
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-16
Industrial applicability (IA)	Yes:	Claims	1-16
	No:	Claims	

2. Citations and explanations

see separate sheet

Box No. VI Certain documents cited

1. Certain published documents (Rules 43*bis*.1 and 70.10)

   and / or

2. Non-written disclosures (Rules 43*bis*.1 and 70.9)

   see form 210

Re Item V.

1 Reference is made to the following documents:

D1 : WO 03/079323 A (KONINKLIJKE PHILIPS ELECTRONICS N.V; ZHOU, GUO-FU; JOHNSON, MARK, T; H) 25 September 2003 (2003-09-25)

D2 : US 2002/196207 A1 (MACHIDA YOSHINORI ET AL) 26 December 2002 (2002-12-26)

D3 : WO 2004/072942 A (KONINKLIJKE PHILIPS ELECTRONICS N.V; ZHOU, GUOFU; JOHNSON, MARK, T; AI) 26 August 2004 (2004-08-26)

D4 : WO 2004/100121 A (KONINKLIJKE PHILIPS ELECTRONICS N.V; JOHNSON, MARK, T; ZHOU, GUOFU) 18 November 2004 (2004-11-18)

2 INDEPENDENT CLAIM 1

2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1 and 16 is not new in the sense of Article 33(2) PCT.
Document D1 discloses (the references in parentheses applying to this document) a display apparatus (figure 1), which comprises :
• an electrophoretic material (page 5 line 27) comprising charged particles in a fluid (page 5 line 31);
• a plurality of picture elements (page 6 line 13);
• first and second electrodes (page 6 lines 13 and 14) associated with each picture element (page 6 line 13) for receiving a potential difference (page 2 lines 1 to 4), said charged particles (page 2 lines 1 to 4) being able to occupy a position being one of a plurality of positions between said electrodes (page 2 lines 1 to 4);
• drive means (page 6 line 9) arranged to supply a sequence of picture potential differences in the form of a driving waveform for enabling said charged particles (page 6 line 27, figures 3 and 4) to occupy one of said positions for displaying an image, the driving waveform consisting of a sequence of image update signals including a picture potential difference (figure 11 item " vn"), the image update signals being separated by dwell times (page 2 lines 5 and 6), wherein one or more shaking pulses are generated during the dwell times (page 11 lines 15 to 29, figure 11).

3 INDEPENDENT CLAIM 15

What has been said above with reference to device claims 1 and 16 concerns method claim 15 mutatis mutandis, as claim 15 contains only method steps relating to the obvious purpose of the apparatus features claims 1 and 16, and, as the same prior art as above mentioned is relevant.

The subject-matter of claim 15 is not new in the sense of Article 33(2) PCT.

4 DEPENDENT CLAIMS 2-7, 9-14

Dependent claims 2-7, 9-14 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT), for the following reasons:
Document D1 discloses (the references in parentheses applying to this document) that one or more shaking pulses are generated following each image update signal or that one or more shaking pulses are generated substantially immediately following each image update signal (page 7 line 17 to 24, figure 6, item 53).

The subject-matter of claims 2 and 3 is not new in the sense of Article 33(2) PCT.

Document D1 further discloses that one or more shaking pulses comprise regular shaking pulses which are generated at predetermined intervals along said driving waveform and that the intervals are substantially equi-distant. (page 11 line 15 to 29, figure 11, item 97).

The subject-matter of claims 9 and 10 is not new in the sense of Article 33(2) PCT.

Then, document D1 discloses that charge recycling means within a power supply is used to generate said regular shaking pulses (page 9 line 33 to page 10 line 5).

The subject-matter of claim 11 is not new in the sense of Article 33(2) PCT.

D1 does not explicitly disclose the technical features of claims 12 to 14 but, by implementing the teaching of D1, the skilled person would obviously use means for temporarily preventing said regular shaking pulses from being generated during an image update sequence, and for recommencing generation of said regular shaking pulses after the image update sequence has been completed and therefore, he would operate in one of at least two modes, and further he would use means for switching between said two modes, in which the generation of said regular shaking pulses is enabled, and a second mode, in which the generation of said regular shaking pulses is disabled, so that power consumption is reduced as proposed in D1 (page 9 line 33 to page 10 line 5).

Hence, the subject-matter of claims 12 to 14 does not involve an inventive step in the sense of Article 33(3) PCT.

D1 does not disclose the technical features of claims 4 to 7, however, as a routine measure, the skilled person would combine with D1 the technical features disclosed in the document D2 and would thereby arrive at the subject matter of the set claims 4 to 7. D2 discloses that the update signal comprises a reset pulse and a greyscale driving pulse (page 6 lines 14 to 30, figure 4), wherein each image update signal includes one or more shaking pulses (page.6 lines 14 to 30, figure 4), wherein one or more shaking pulses are provided prior to the reset pulse of each image update signal (page 6 lines 14 to 30, figure 4), wherein one or more shaking pulses are provided between the reset pulse and the greyscale driving pulse of each image update signal (page 6 lines 14 to 30, figure 4).

5 DEPENDENT CLAIM 8

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1 and 8 is not new in the sense of Article 33(2) PCT.
Document D4 discloses (the references in parentheses applying to this document) a display apparatus (page 1 line 1, figure 1), which comprises :
- an electrophoretic material (page 1 line 3) comprising charged particles in a fluid (page 1 line 3, figure 2);
- a plurality of picture elements (page 1 line 4);

• first and second electrodes (page 1 line 5) associated with each picture element (page 1 line 5) for receiving a potential difference (page 1 line 5), said charged particles (page 1 line 9) being able to occupy a position being one of a plurality of positions between said electrodes (page 1 line 9);
• drive means (page 1 line 10) arranged to supply a sequence of picture potential differences in the form of a driving waveform for enabling said charged particles (page 1 line 10, figures 4A and 4B) to occupy one of said positions for displaying an image, the driving waveform consisting of a sequence of image update signals including a picture potential difference (page 6 lines 29 and 30, figure 4A), the image update signals being separated by dwell times (page 6 lines 29 and 30, figure 4A), wherein one or more shaking pulses are generated during the dwell times (page 6 lines 25, 26 and 27, figure 4A).

The subject-matter of claim 1 is therefore also not new in the sense of Article 33(2) PCT, with regard to document D4.

Document D4 further discloses that a sequence of shaking pulses is generated following each image update signal, the energy of the shaking pulses of each sequence decreasing progressively during said sequence (page 6 lines 25, 26 and 27, figure 4A).

The subject-matter of claim 8 is also not new in the sense of Article 33(2) PCT.